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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/342,584	06/29/99	APPELT	B EN995141V

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EXAMINER

ALCALA, J

ART UNIT

PAPER NUMBER

2841

DATE MAILED: 08/15/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

## Office Action Summary

Application No.

09/342,584

Applicant(s)

APPELT ET AL.

Examiner

Jose H Alcala

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-48 is/are pending in the application.
- 4a) Of the above claim(s) 11, 16-18, 31-36 and 39-47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10, 12-15, 19-23, 37-38 and 48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Information Disclosure Statement***

1. The information disclosure statement filed 6/29/99 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

***Election/Restrictions***

2. After further review of the claims it is determined that there is an additional specie, Figure 6 and claims 16-18,24-30 and 46-47 readable thereon, also it is determined that since claims 31 has a component on the substrate, it is readable on the above specie and not the species elected by applicant. In addition claim 39 is depending from claim 24, which is readable upon the specie of Figure 6.

***Specification***

3. The abstract of the disclosure is objected to because it should not be one sentence describing the invention, it should be a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. Correction is required. See MPEP § 608.01(b).

***Drawings***

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 260 in Figure 4. Correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1,2,8 and 48 are rejected under 35 U.S.C. 102(b) as being anticipated by Jensen US Patent No. 4,318,954.

Regarding Claim 1, Jensen teaches a printed circuit board (10) comprising: a substrate layer comprising impregnated glass fibers (14); a non-conductive layer comprising a dielectric material free of continuous glass fibers applied to said substrate layer (13); and an electrically conductive circuitry comprising a conductive material formed on said non-conductive layer(16) such that said non-conductive layer lies between said substrate layer and said conductive material to prevent shorts.

Regarding claim 2, it teaches a plated through hole(17) extending through said substrate layer and said non-conductive layer and electrically coupled to said circuitry.

Regarding Claim 8, it teaches at least one clearance between said electrically conductive circuit (18) and said elated through hole filled with said dielectric material (19).

Regarding Claim 48, Jensen teaches: a substrate comprising impregnated glass fibers(14); an electrically conductive circuit(16); and a non-conductive layer (13) comprising a dielectric material free of continuous glass fibers applied to said substrate such that said non-conductive layer lies between said substrate and said electrically conductive circuit.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3-7 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jensen US Patent No. 4,318,954.

Regarding Claims 3-7, Jensen teaches all the limitations of the instant claimed invention as stated supra for claims 1 and 2, but fails to teach that the dielectric material comprises a photo imageable dielectric material, comprises a polyimide, comprises a Kevlar-based paper impregnated with epoxy resin, is resin-coated copper foil, or it is a prepreg comprising a glass fabric impregnated with epoxy resin. All these are well

known materials in the art, so it would have been obvious to one of ordinary skill in the art at the time of the invention, to use any of this material as the material of the dielectric. In addition it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Regarding Claim 37 the reference fails to teach the thickness of said non-conductive layer is between 0.5 mils and 5 mils. It would have been obvious to one of ordinary skill in the art at the time the invention was made to change the thickness of the non-conductive layer in order to make the printed board more or less rigid. In addition it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. See In re Aller, 105 USPQ 233.

8. Claims 10,12-14,19-23 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jensen US Patent No. 4,318,954 in view of Applicants Admitted prior art.

Regarding Claim 10 Jensen teaches all the limitations of the instant claimed invention as stated supra for claim 48, but fails to teach further comprising at least one power plane. Applicants Admitted prior art teaches in Figure 2, a power plane (36). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings in order to include a power plane, thus improving the current carrying capacity of the circuit board.

Regarding Claim 12, Jensen teaches at least one plated through hole (17) extending through said substrate and said non-conductive layer.

Regarding Claim 13, Jensen teaches a dielectric material free of continuous glass fibers in the space between the layer 11, and the through hole. However, Jensen fails to teach that said power plane is spaced from said through hole and said electronic device package further includes a non-conductive layer comprising a dielectric material free of continuous glass fibers in the space between said power plane and said through hole. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings in order to have said power plane spaced from said through hole and said electronic device package further including a non-conductive layer comprising a dielectric material free of continuous glass fibers in the space between said power plane and said through hole, in order to limit the flow of current from the power layer to the through hole.

Regarding Claim 14, Jensen teaches the non-conductive layer(13) is positioned between said through hole and said electrically conductive circuit.

Regarding Claims 19-23, the reference fails to teach that the dielectric material comprises a photo imageable dielectric material, comprises a polyimide, comprises a Kevlar-based paper impregnated with epoxy resin, is resin-coated copper foil, or it is a prepreg comprising a glass fabric impregnated with epoxy resin. All these are well known materials in the art, so it would have been obvious to one of ordinary skill in the art at the time of the invention, to use any of this material as the material of the dielectric. In addition it has been held to be within the general skill of a worker in the art

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to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Regarding, Claim 38 the Jensen fails to teach the thickness of said non-conductive layer is between 0.5 mils and 5 mils. It would have been obvious to one of ordinary skill in the art at the time the invention was made to change the thickness of the non-conductive layer in order to make the printed board more or less rigid. In addition it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. See In re Aller, 105 USPQ 233.



**Conclusion**

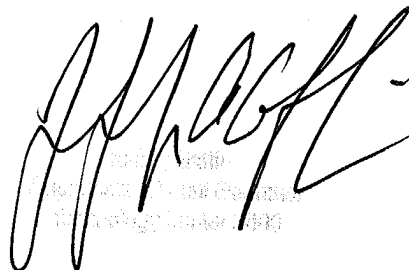
9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references show some of the elements of the instant claimed invention: Kurosawa et al., Vom Bruck, Pellegrino, Schmidt et al. and DiStefano et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jose H Alcala whose telephone number is (703) 305-9844. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on (703) 308-3301. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JHA  
August 13, 2001

A handwritten signature in black ink, appearing to read "Jose H. Alcala", is written over a faint, circular official stamp. The signature is fluid and cursive.